The Roles of Intermediation and Knowledge Creation in Community Development in Rural Bangladesh: ICT as a Tool rather than a Goal in Access to Information

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Abstract

Recently, poverty has been redefined to cover not only economic and social deprivation, but also deprivation of information and lack of access to information. This paper addresses the potential of ICT in improving the access to information of both NGO workers and less privileged people who are the target group of NGO programmes. Based on ethnographic field study data, this paper describes opportunities and challenges in intermediation work in rural areas in Bangladesh. The paper presents an analysis of the intermediation work done by NGO workers, and it is discussed where ICT integration is needed and how ICT can support the ongoing community development work. Based on a theoretical framework which brings together intermediation, knowledge creation and social capital, this analysis investigates the role of intermediation for knowledge creation in the context of developing countries. More specifically, the analysis focuses on the information practices of field workers and their perception of ICT as a possible tool in their work. It is not proposed that ICT offers a solution for the complex problems facing rural marginalised groups and NGO field workers. In contrast, the paper offers the conclusion that community technology development and community capacity building can work in a mutually supportive way.

Keywords

Intermediation; Knowledge vs. Information; Access to Information; ICT4 Development; Bangladesh

1. Introduction

Bangladesh is known worldwide for conditions such as poverty, flooding, illiteracy and dense population. However, Bangladesh is also a country of considerable growth and development. In a recent report on the ICT sector in Bangladesh, the status of the

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country is described like this:

> "Since emerging as an independent country in 1971, Bangladesh has achieved some notable development amid major socio-economic challenges. Among others, this South Asian country's GDP has more than tripled in real value; food production has increased three times; child mortality has decreased substantially and it is performing better than its neighbours in terms of ensuring gender parity in education."
> (Hussain in press: 10)

This picture of Bangladesh as a nation and an economy of considerable potential and growth is shared by leading investment firm Goldman Sachs Group. In 2001 the term BRIC was created to name the four most potential economies in the world (Brazil, Russia, India, China), and in 2005 the next 11 countries were identified (N-11), among them Bangladesh.

The Hussain report goes on to point out the fact that despite severe poverty and literacy issues (UNICEF 2012 reports an adult literacy rate at 56 per cent in the period 2005-2010), the country has at present around ten million Internet users (primarily using mobile Internet) and around 70 million active mobile SIMs. Telecommunication is in rapid growth, and the dominance of mobile phones over computer use reflects the status of the economy, literacy, availability of electricity and Internet access in the country in general. The fact that around 74 percent of the total population of 170 million live in rural areas makes access to the Internet and telecommunication even more important for participation in society. However, even though there is some penetration of ICT, Internet access and telecommunication in general, a large group of less privileged people in rural areas are not part of this ICT and telecommunication 'miracle'. In rural areas a vicious circle of illiteracy, unemployment, poverty *and* lack of access to information characterises the living conditions of many people.

Lack of information and access to information becomes a problem for people who are otherwise disadvantaged. It is not information in general that is the issue, at least not for the less privileged, rather information which is vital to the livelihood and everyday lives of people. Examples of this are information about inoculation campaigns, old age benefits, formal requirements for enrolment of children into schools etc. Recently, the notion of poverty has been redefined to describe not only economic and social deprivation, but also lack of information and access to information (Heeks 2003; Sein et al. 2008; UNDP Bangladesh 2010). Bangladesh has a very extensive network of NGOs working towards bettering the living conditions of the less privileged people in the country. This paper is based on a study of the work of so-called *field facilitators* working within the Community Empowerment Programme (CEP) of the Bangladesh Rural Advancement Committee (BRAC). The job of these NGO workers is to support community development in rural areas by providing information and access to information to people.

In Bangladesh the current government has formulated the so-called Vision 2021 for Digital Bangladesh as part of their response to the situation in the country (BOI 2012). The strategy focuses on the following issues:

- Access to and better delivery of government services to citizens

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- Citizen empowerment through access to information

- Infrastructure, education and skills development

The Bangladesh government strongly believes that the success of Digital Bangladesh lies in mainstreaming the marginalised population into the development goals with ICT as an enabling tool. This vision is also the driving force behind the establishment of 4501 ICT-based information centres to serve citizens in the rural areas. Telecentres is one of the promising models recognised by the United Nations (UN) for achieving global access to ICT. Under certain conditions ICT is expected to be able to improve the rural livelihood through sustainable strategies (UNDESA 2004).

However, there is still a lack of common ground when it comes to understanding the relations between technology intervention and community development. Debates about ICT for development (ICT4D) typically present either an optimistic or a pessimistic view, especially considering rural development issues in developing countries (Heeks 2002; Heeks 2008; James 2005; Sein et al. 2008). Researchers within the field of community informatics have identified deep-seated issues in developing countries, such as poverty, illiteracy, lack of ICT skills and lack of ICT investments. It is obvious that ICT plays a strong role in international development, but there is little research on how the needs for technology in poor communities differ from those in the well-developed or industrialised countries (Brewer et al. 2005). Recent research on ICT4D argues that we need to focus on the relationship between ICT and development and identify in which ways ICT opens possibilities for enhancing the development process. Chapman and Slaymaker briefly describe this issue:

> "While it is important to understand the complexity of the rural development context, and that ICTs are no 'magic bullet', it is equally important to appreciate the flexibility of some of these technologies to accommodate the specific demands of developing countries. It is only by combining an in-depth understanding of rural development issues with improved understanding of the capabilities of ICT, that donors can develop a more balanced assessment of the potential of ICTs to support rural development strategies".
> (Chapman & Slaymaker 2002: 3)

We believe that this is not only relevant for development and aid work, but for ICT4D research in general. However, as pointed out by Sahay and Avgerou (2002), a problem remains regarding the ways in which we can draw theories or frameworks from other disciplines into the field of ICT4D and still take into account the local contexts and issues. In this paper we present a study of information practices in rural Bangladesh. The study is part of a research project which explores the scope for ICT use in community development. Some significant changes are seen with ICT for development research in the sense that where ICT was perceived as a goal of development, it is now rather seen as an instrument to stimulate development work. The study presented here describes and analyses the information practices of a group of NGO workers and of a number of local women's groups that collaborate with the NGO workers. The case presented here can be described as *information-based intermediation* aiming for community development in rural areas. With this study we explore current information practices and the assumptions underlying these practices. We conclude the paper by discussing how the findings of this study can

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inform the design of ICT use in the information work in question.

This paper addresses the following questions:

- How does the intermediation and information dissemination work in community capacity building play out in rural Bangladesh?
- What role(s) can ICT play to support the processes of intermediation?

In the following, we deal with the first question through analysis of data from field studies, and we carry out a thorough analysis of observation as well as interview data. Among other things, the analysis produces a picture of the role of the NGO workers as gatekeepers to information. The question of the role of ICT is then discussed, mainly based on our knowledge about the region and on a theoretical underpinning which sees ICT as an engine for change. Previously, we have carried out studies and analyses of the use of ICT and the potential of ICT, based on observations studies, workshops and other user-oriented interventions (Akther 2012). However, for lack of space the discussion in this paper does not draw explicitly on data from these activities.

This research has been carried out in collaboration with BRAC's Community Empowerment Programme (CEP). The programme aims both at providing basic livelihood information *and* at cultivating the skills of the users of the programme to make use of information from governmental and non-governmental services. It has become clear that access to information or access to ICT in itself is not enough to create a basis for action and change. In developing countries people more often than not lack the necessary skills and competences for potential use of much available information. Lack of literacy, skills and financial opportunities as well as geographical distance all serve as barriers for active information seeking and subsequent knowledge creation.

In this study we carry out a close scrutiny of current information practices in order to give insights into both the underlying assumptions regarding the roles of information suppliers (e.g. local or national government, health authorities, NGOs etc.), information seekers and field facilitators as well as the potential of ICT in supporting the process. Furthermore, the circumstances under which information practice unfolds, as well as barriers for change, will be identified through this study. A deeper understanding of current practices can serve as the foundation for the development of sustainable ICT strategies or tools to support ongoing community development.

Based on data from interviews and observations of field workers, women's groups and sector specialists from BRAC, this paper describes opportunities and challenges in the intermediation methods and techniques applied. Finally, the findings from the data analysis are discussed in relation to the use of ICT in the field. We conclude the paper by outlining a number of concerns and questions based on the findings presented here.

2. Theoretical framework of the study

The theoretical approach in this study focuses on three central concepts, namely intermediation as defined by Beck et al. (2004); knowledge creation to describe the 'integration' work an information seeker needs to do in order to turn information into

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usable knowledge; and finally social capital as it is presented by Huysman (2004) in her recontextualisation of this broadly used concept.

In general, the population in rural areas faces significant socioeconomic challenges throughout the world. Within the last decade, many governments have formulated responses to these challenges and try to emphasise sustainability in community development. The issue of sustainability has been in focus in development research for quite some time. Many commentators believe in taking a bottom-up approach to achieving sustainable rural community development. In 1996 Mannion describes the advantages of a bottom-up approach like this:

> "Bottom-up locally based approaches permit policies to be more socially inclusive and help ensure the social stability and cohesion without which economic growth and structural adjustment will be obstructed."
> (Mannion 1996: 1; op. cit. Simpson et al. 2003)

The idea of access to information is derived from the notion of access to ICT, as suggested by many development researchers. Discussions about the relations between information, knowledge and economy have given rise to terms and concepts such as information economy, information capitalism, knowledge economy and socioeconomy. Shared by all definitions is an interest in the opportunities of generating information and knowledge (see e.g. Castells 1998; World Bank 2003). Phipps also argues that the inclusion of people, societies and nations in the new economy depends on their ability to link up with information processes and compete in a local and global context (Phipps 2000). Access to information is one form of community development initiative. It is widely known that ICT tools have the capabilities to facilitate access to information; on the other hand, it is also recognised that the invert of these opportunities leads to exclusion, as illustrated by e.g. Heeks (2002a).

Social capital is a term coined by political and sociological researchers, initially used to criticise economic theories and thinking which did not take into consideration the social and human aspects of economic transactions (Huysman & Wulf 2004). Within ICT-related research, such as CSCW and ICT for Development, social capital has gained increasing interest amongst researchers concerned with knowledge sharing, community building, learning communities etc. With respect to knowledge sharing, the introduction of the concept of social capital has brought about a radical shift from considering individual human resources to considering social capital, bringing with it a shift in focus from the exchange of knowledge between individuals to the motivation of people to share their knowledge. It is in the latter sense we find social capital to be of interest to our study. In relation to the use of ICT, Quan-Haase and Wellman (2004) have found that the Internet influences civic engagement by adding to already existing levels of social capital. For the less privileged, it would seem, it is not sufficient to establish access to information via access to ICT and the Internet alone. Thus, the issue of how ICT may support the process of intermediation or promote active knowledge sharing is not a trivial question. In the study presented here, we wish to supply solid knowledge about current practices as the basis for further discussion of this matter.

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In developing countries it is also the case that access to information and ICT in itself is not sufficient to ensure community development or individual capacity building, as users often do not have the necessary skills and competence in using ICT for processing available information. Heeks (2005) describes some supporting resources for information processing, such as *social*, *economic* and *action* resources, by which the user can manipulate information or data into applicable knowledge. Community-based organisations and NGOs play a vital role in enhancing peoples' capacity for creating better livelihoods for themselves. Most of the time NGO workers are involved in the community development process as mediators who negotiate between government or non-government service providers and the rural people and assist people by helping them access, assess and apply information. Beck et al. (2004) describe different ways in which mediation has been used in literature and summarise it as follows:

- Development contexts
- Public-private partnerships for service provision
- Advocacy work for civil rights
- Local appropriation of capital

The mediators themselves are described as government agencies, NGOs and international agencies, and Beck et al. discuss the dynamics of marginalisation in information technology-focused contexts. Mediators work against marginalisation, which is defined as a complex state not to be seen as an end result or a static state, but rather as a situated state or process continuously unfolding (Beck et al. 2004). In our case, we take our point of departure in the work of individual NGO workers and study how they mediate between information providers and information seekers. The model below illustrates the unfolding of marginality as a movement between the anchored and outcast, and the impact of the mediator's support is seen as a possible way of maintaining a sense of anchoring (figure 1). Hence, the mediators or intermediates are seen as continuously working and engaging in attempts to change or alter the impact of marginalisation.
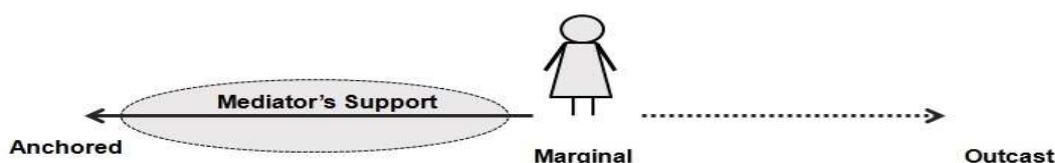

Figure 1. Mediation and processes of marginalisation (Beck et al. 2004: 283).

Marginality depends on the actions of multiple parties:

- Those who are marginalised
- Those who willingly or unwillingly erect or strengthen the boundaries surrounding the dominant culture
- Those who seek to open those boundaries and facilitate transitions

In this paper we aim to illustrate the dynamics of the intermediation process in the Community Empowerment Programme (CEP), which we consider an example of

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mediation in a development context, aimed at general advocacy and at information work related to the specific needs of the rural participants in the programme.

The focus of developmental research has been shifting away from the earlier discourse on the *information society* to the *knowledge society*. This change affects the ways in which researchers and policymakers think about social and economic development. For years, the development sector has recognised knowledge sharing as a pillar of sustainable development (Bellanet 2000). However, since knowledge is linked to people's experiences, values, beliefs and cultural practices, it is not easily shared through access to information alone (see e.g. van der Velden 2002 for further argument of this point). Van der Velden also argues that ICT can support documentation of knowledge and creation of knowledge and describes her understanding of knowledge creation as something which goes beyond access to information:

> "Alternative approaches are required, that focus on the knower and on the context for creating and sharing knowledge. ICT tools need to support this approach, helping people develop appropriate or alternative scenarios and improving the accessibility of information and knowledge for people with different cultural, social, or educational backgrounds".
> (Van der Velden 2002: 25)

In summary, the theoretical framework of this analysis describes intermediation as the process of getting access to information as well as supporting the process of active knowledge creation for users in need of information. It is understood that access to information that can be fairly easily secured via e.g. the Internet is not sufficient for knowledge creation to take place. Furthermore, the concept of social capital is described as a vital element in the intermediation process as well as in knowledge building in general. To further clarify what we mean by social capital, we refer to Huysman (2004), who reviews the literature on knowledge sharing. By combining the most prominent contributions, she identifies three conditions for knowledge sharing, namely:

1. Structural opportunity to share
2. Cognitive ability to share
3. Relationship-based motivation to share
(Huysman 2004: 198)

To study what social capital requires, in other words, one needs to analyse the existing social networks and corresponding ties (a structural analysis); the existing shared language, frames of meaning and stories (a cognitive analysis); and the existing level of trust and reciprocity (relational analysis). In the following analysis, the notions of social capital and knowledge creation will serve as means for describing and understanding the intermediation process and the intensity of the interactions in the community group and between mediators and groups.

3. Setting the scene

The largest NGO in Bangladesh, BRAC (Bangladesh Rural Advancement Committee), has expanded its activities with the objective of alleviating poverty and empowering the poor. The Community Empowerment Programme (CEP) takes a

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holistic approach to building rural institutions called 'Polli Shomaj' and 'Union Shomaj' ('polli' and 'union' indicate the geographical nexus of the group, polli being the smallest unit, and 'shomaj' meaning group or society). The groups are meant as a means of ensuring stronger accountability of local and regional government as well as non-government services to people with limited access to those services or limited resources to process and act on the available information. In particular women are targeted, e.g. in setting up Polli Shomajs. This involves gaining better access to information and building social resources. Resource persons, such as health care specialists, education advisers, law counsellors, are in urgent demand in rural Bangladesh, yet poor infrastructure, poverty, lack of literacy, lack of knowledge or information restrain access to basic services for a very large part of the Bangladeshi population (Mahmud 2006). To counter these challenges, BRAC's CEP has developed community engagement methods and techniques to employ a human capacity building approach. For an overview of the goals and approach taken in CEP, see figure 2 below. Please note that in the activities studied in our case, mainly the objective of strengthening rural people is in play.
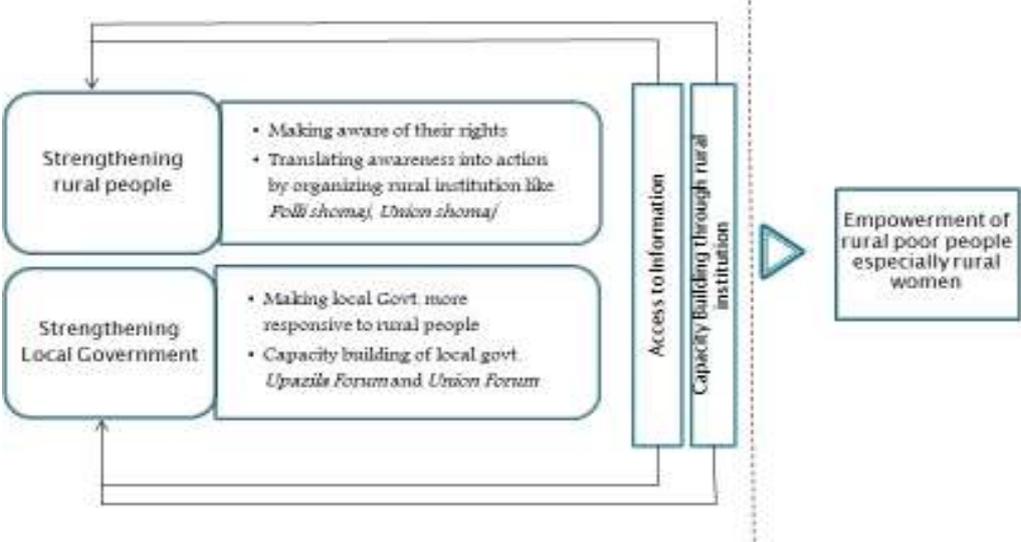

Figure 2. The objectives and approach of CEP.

A key focus of the Community Empowerment Programme is to build the capacity of rural poor women by organising and mobilising them so that they are able to take collective action against exploitation and social injustice, gain better access to local government resources, address systemic inequities and play a more active civic role in the public sphere. Since 1998 more than 12,260 community-based institutes (Polli Shomaj, PS in the following, and Union Shomaj, US in the following) have been established, concentrated in the rural and poor areas of the country. A PS serves as a forum through which members can raise their voice and claim their rights and entitlements. A PS is a ward level institution of the poor, especially women. There is a total of 11,234 PSs in 61 districts in Bangladesh with an average of 60 members in each PS. Union-level federations of PS groups are known as USs. USs enhance the strength of the groups and allow for networking between leaders of the different PSs. There are 1,217 USs in 61 districts in Bangladesh. The general aim of the rural institutions is to mobilise rural disadvantaged groups, especially women, to connect communities and to promote and practice active citizenship. PSs and USs work as tools for accessing information and applying that information to the livelihood

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practices of rural people. In the following, the activities of the two types of groups are described in short.

3.1 The activities of rural institutions (Polli Shomaj)

- Members helping themselves and their local communities access government services and resources.
- Members accessing and participating in government training for income generating activities such as sewing, livestock, agriculture, fisheries, food processing and handicrafts.
- Members participating in decision making processes (local judicial processes or dispute resolution) on the use of local resources such as khas land, water bodies and government land alongside roads and rivers.
- Members engaging in local social initiatives and activities such as the prevention of dowry and early marriage, protesting against violence, providing support for children's education etc.

3.2 The role of BRAC in mobilising the rural institutions

BRAC works directly with members of PSs, ensuring the following activities and support:

- Bridging information gaps in the rural areas in Bangladesh which continue to remain unaddressed.
- Ensuring accountability of PS and US groups throughout the country.
- Providing information to the rural poor about local government or non-government resources.
- Helping in the process of selecting persons or households eligible for local resources and government or non-government services through a participatory process.
- Participating in decisions on the types of public work to be undertaken in their own community.
- Handling irregularities and addressing systemic inequalities.

3.3 The geographical setting for the empirical work

The setting of this case study CEP is in the district of Mymensingh, which is located about 120 kilometres north of the capital city Dhaka. The empirical study took place in eight subdistricts of the Mymensingh District. Over a period of six months, fieldwork was carried out and a number of interviews, observations, workshops and other interventions were conducted. In this paper we focus on the detailed study of the work of the field facilitator in order to explore the way intermediation takes place in CEP. The work responsibility of CEP staff is directed at different geographical locations and takes place at different organisational levels, which we have illustrated in figure 3 below.
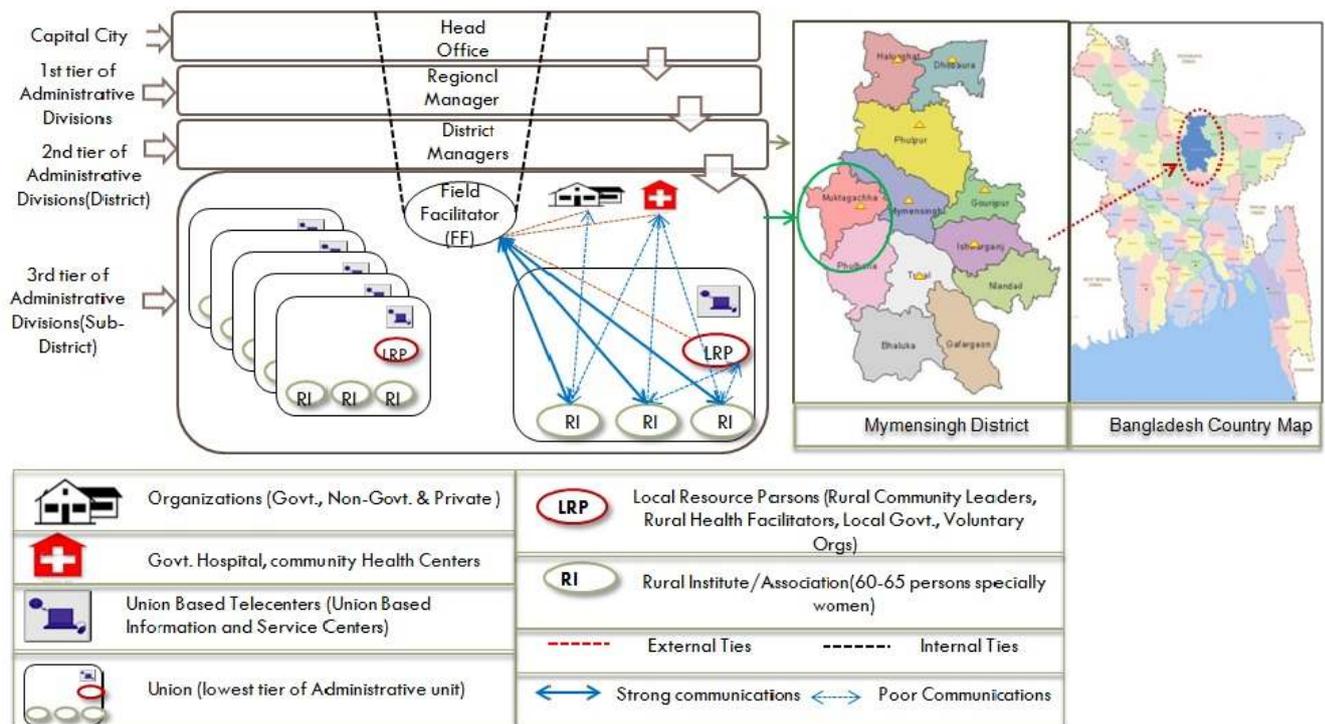
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Figure 3: Activities map of FFs in Mymensingh District.

Field facilitators (FFs) are employed at the bottom level of the CEP and BRAC hierarchy. Mostly, the FF works directly at the community level and with the PS and US groups. Since this paper concentrates on unfolding intermediation at the micro level, our research focus is on the FF work which is distributed across their district. The empirical research has covered eight subdistricts marked in figure 3. FFs (usually women) are chosen from their districts on the basis of their communication and interpersonal skills and subsequently trained in basic strategies for collecting information from different organisations and in organising PS meetings and workshops. FFs are directly connected with subdistrict government organisations and officials, non-government organisations, voluntary organisations, hospitals, community health centres, local resource persons (LRP) such as rural community leaders and local health volunteers. Usually FFs work in several Unions (last tier of administrative units). Even before we go into more detail in our analysis of the data from our ethnographic study, it is clear that the FFs to a large degree work with point of departure in the needs of the local group, i.e. in a bottom-up oriented way.

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Picture 1, left-hand side: FF collects information from the Department of Public Health Engineering (DPHE) in her subdistrict. Tools used in this process include official documents from the health department (not in the possession of the FF); paper notebook for making notes of relevant information; pen. This is a one-to-one situation, and the FF serves as a carrier of information.

Picture 2, right-hand side: FF disseminates information to the women's group in the village together with a local resource person. Tools used in this process include a paper-based form (to demonstrate and explain); oral explanations for the PS members to remember the information. This is a one-to-many situation, and the FF, the PS leader and a local resource person collaborate on bringing information to the PS members.

In the following, we have illustrated the general work tasks, process and activities of a FF. The description contains information on the tools used for communication and documentation purposes and on how the FFs move around in the local area as they carry out their work. The description is based on data from field observations done by the first author of this paper. The work of field facilitators and PS leaders has been documented through observations with field notes, photos and recordings of conversations and by participating in meetings and conversations between FFs, PS leaders and PS members.

3.4 Activities, tasks and work processes of field facilitators

Usually FFs have completed HSC (High School Certificate) in their village schools. They receive a modest salary with which they are expected to cover their own expenses for local transport. This means that they sometimes need to travel by foot to get to villages to meet with groups or to go to town to visit organisations or government offices. They usually have a basic mobile phone and carry notebooks for making registrations, information leaflets etc. Often they walk along muddy roads, and sometimes they need to use boats to cross rivers.

Picture 3: Training session with PS leaders. FFs run workshops and training sessions. Tools used for this are paper-based materials, oral presentations, discussions. This is a one-to-many and many-to-many situation, where both presentations and group discussions take place.

Figure 4 below summarises three main activities in the work of the FFs, namely:

1. Preparation for PS meetings

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2. PS meetings
3. Visits to organisations or LRPs (Local Resource Person)

In the diagram below each activity has been divided into three parts concerning communication and the tools used for this purpose, documentation and the tools used for this purpose, and, finally, movement and places for this activity.
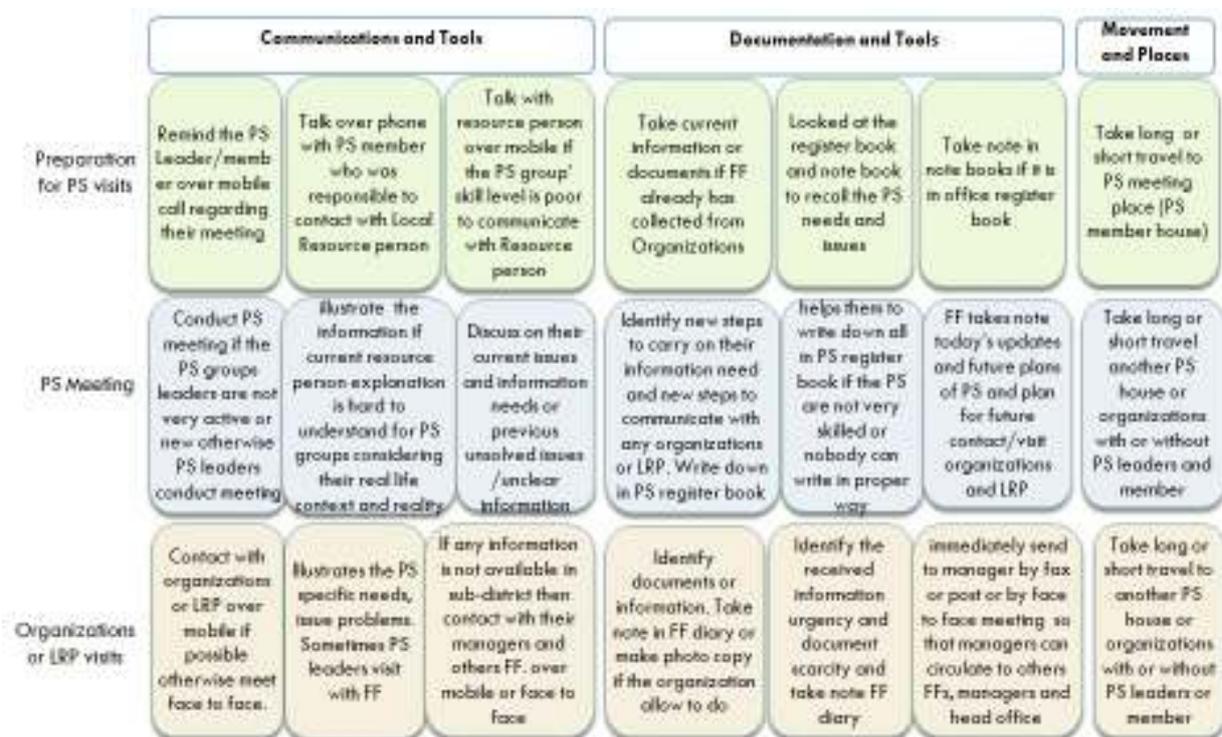

Figure 4. Tasks, activities and tools in the work of field facilitators.

4. Methodology

For the study of the information practices and work processes of the FF and local women's groups, we have chosen an ethnographic methodology with some participatory aspects (see e.g. Hammersley & Atkinson 2007 for a more thorough introduction to ethnographic methods), which offers a wide range of methods for investigating research problems. The fieldwork consists of about 25 interviews with field facilitators, district-based sector specialists and the PS and US members of CEP. Furthermore, participatory observations have been carried out of workshops, meetings and training sessions with PS groups. Also monthly workshops for field facilitators have been observed. In total, 15 days of participatory observation divided between seven field trips from October 2010 to March 2011. Interviews were recorded by audio when permission was given by the interviewee, and field notes were used when it was not possible to record conversations or interviews. Field notes from participatory observations were written in a work log file on the same day or as soon as possible after the observations. Secondary data sources include newspapers clips, official documents, workshop booklets and the diaries/register books of field facilitators (FF) and PS groups.

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5. Data analysis and findings

The primary data material for the analysis presented in the following is interviews with field facilitators and members of the local PS groups. In our work with the data we have been inspired by the theoretical framework described in section 2 in this paper. However, as the data material has shed light on the questions we are investigating, we have found it useful to revise the framework in order to provide a more comprehensive understanding of the activities studied. In order to explore the complex reality and the way the intermediation processes shape the information practices in the rural community (and vice versa), an interpretive data analysis has been employed where, in Neuman's words, the researchers become the vehicle to reveal reality (Neuman 1997). In this case, the FFs also become vehicles for revealing reality by allowing the researchers to follow and document their work. This is not a trivial issue in Bangladesh, where the work in many NGOs is characterised by a great concern among the employees not to be critical of e.g. the local government or others on whose collaboration they depend.

The interpretive process of the data involves a series of tasks, as described by e.g. Denscombe (2007):

- Code the data
- Categorise the codes used
- Identify themes and relationships among the codes and categories
- Develop concepts or metaphors and arrive at generalised statements

5.1 Examples from data analysis

The main objective of this analysis is to identify and present the viewpoints of the FFs and PS groups who have shared their experiences and the insights from their activities in interviews and group discussions. This helps us understand what the activities mean to both FFs and the participating community groups (PS), and furthermore the perspectives of the participating groups help us understand how the FFs' work is understood by the target group. Below we present the result of the first step of the coding process and the categories we have formulated on the basis of the initial coding. Both are described in the tables below. After coding, we arrived at two categories, namely *Information behaviour and practices* and *Sharing resources and collaboration*. The categories were the result of both our research questions (in particular the question on how intermediation work plays out) and the theoretical framework (in particular the notion of social capital and Huysman's identification of conditions for knowledge sharing). At the time of writing, we have not carried out a complete analysis of all field data, and furthermore the material displayed below should be seen as examples meant to illustrate our process of analysis and the quality of the data, not as an analysis of all interview data. The tables below present what we have found in the data, and the coded data extracts are divided into two groups, one representing the FFs and one representing the PS group members.

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Category	Codes	Field facilitators – example quotes	PS group members – example quotes
Information behavior and practices	Purpose of information	'Find out current and updated information on social benefit or income generation skills training for PS groups' 'Try to get detail and authenticated information' 'PS can get agriculture, government circular on skill training information from ICT centers but it needs explaining and we need to make them aware about this'	'If we face problem we talked with family earlier. I am member I talked with leaders or members of this PS group' 'We have FF's and Local health lady's mobile numbers in our register book' 'We hardly hear radio, whenever we have time we follow TV from our neighbour's house'
	Interpretation and understanding	'Not directly disseminate the information, unskilled PS groups don't have understanding of their need for information' 'Explain it whatever they are able to understand and whatever they need at this current stage' 'Try to illustrate relating to their current situational needs or give example using success case story in their village to make clear the information need'	'We don't know what is called information' 'Now we know that we have right to know about the government services. Previously we just gave our vote to the local government' 'We heard that the government is building a complex in the union for digital Bangladesh but we don't know anything else' 'Neighbours can help us read this, if we don't understand. Or we call FF' 'My daughter-in-law has some education so she helps me read text message from mobile'
	Tools	'For short information we use mobile frequently' 'If we would have opportunity to have computer and internet then sometimes we don't need to go from organisation to organisation - some information we could get from internet' 'Newspaper is not enough' 'If PS group can talk with family members from the union based ICT center who are living abroad that will be great for them it will be less cost to them they don't need to go city, but we need to make them aware about this' 'They (the organisations and government offices) don't want to give us the documents some times, we have to write whatever they say.'	'My son has a mobile we use that one'
	Skills and training	'Category A (the most skilled PS groups) can find the information sources in most cases if they hear something important' 'Unskilled PS don't have capability to understand need of information' 'Sometimes I remind PS groups of the previously discussed information by mobile' 'Organisations share their document if they think there is no confidential matters involved' 'Information search is a practice... we try to make addiction of information...' 'Not only education is responsible - it also takes practice.' 'To remember any information depends on how many times we apply the information in our need' 'I know what their needs are right now. When I just joined I wasn't familiar with their attitudes and needs' 'When we have meeting with PS groups and then if we have to visit organisation we feel very exhausted then organisation people don't accept us very warmly, so output from their side is not always so good' 'I took some basic training on computer earlier but I don't have chance to apply it so maybe I forgot, since its matter of practice'	'Know where I have to go for government benefits... which criteria are needed to meet it ...I did many times for my members.' 'We were inside the house earlier, now we can go to offices, we can face local government office with our leaders. We can understand the needs' 'We can conduct our meeting by ourselves, previously we didn't' 'My daughter-in-law has some education so she helps me read text message from mobile'

Table 1. Findings from the category 'Information behavior and practices' from two sets of data.

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Category	Codes	Field facilitators - example quotes	PS group members - example quotes
Sharing resources and collaboration	Meaning-making	'We share with our manager if we don't understand the information what we received over mobile or face to face' 'I think internet is very helpful for our job '	Previously we didn't know 'What is the actual reason for cancelling my application? FF shared the actual reason. We are now aware about that'
	Space and time	'Meet with PS groups' in their house during their meeting time' 'All members have the opportunity to have a meeting in her house. 'Find some time to share information with PS over mobile when we don't have meeting with them' 'Organisation have no time to give us sometimes, we have to leave again' 'Using cyber café for composing monthly reports or for photocopying some official paper' 'Use friend's computer if I need to compose anything'	'Manage our time to have meeting with FF apa. We are all busy arranging our food and household work but we know FF so she will tell us something good for us'
	Motivation to share	'Since I have joined recently as FF so it's heard to get time from organisations because they ask a lot of questions before sharing any information' 'PS discuss with their family head they also depend on our suggestions and depend on PS's shared information'. 'I know her so she can do it. I can depend on the PS leader. I am sure that she will share with the other members' 'Working around more than five years so organisations know me very well so they share any training scheme document' 'Since I am working long time in the organisation people know me. They know why I come here so they are ready to give what I need. They even share some information informally with me.	'When we go together, organisations can give time us' 'Previously they didn't care about us, but now we can do some of the work ourselves' 'We have respect from our family because we can do official work successfully with the help of PS leaders. 'FF helps us to raise our voice and share the information on what services/benefits are available at the moment' 'Poor can understand the needs of the poor' 'We are neglected by some organisations since we are poor.'

Table 2. Findings within the category 'Sharing resources and collaboration' from two sets of data.

5.2 Thematic summary of findings

The codes and connected categories of codes in the above tables are as follows:

Category 1: Information behaviour and practices, with the codes: Purpose of information; Interpretation and understanding; Tools; Skills and training

Category 2: Sharing resources and collaboration, with the codes: Meaning making; Space and time; Motivation to share

The main findings from the analysis of data are:

- FFs have an important function as gatekeepers of information.
- Information is seen by all involved parties to be important for the bettering of people's livelihood and independence.
- Information does not travel easily across levels or organisational boundaries (e.g. from government to local government to citizens). A translation process is needed each time information travels from one 'level' to another.
- Translation (or meaning making) is done by many actors: FFs, local resource persons, neighbours, friends and relatives (sometimes also relatives living abroad).

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- More often than not the FF takes on the role as the information provider/ expert.
- Regardless of the intention of the FFs, the current information practice does not always seem to take the perspective of learning or empowerment.

6. Discussion

Based on the findings in the data, which we have illustrated with examples above, we identify two themes for further exploration and discussion:

1. *Challenges and opportunities of information-driven intermediation processes*
2*. Relationships and motivation are linked with knowledge sharing and creation*

In the following we discuss the two themes, considering both the conceptual framework and the research questions and looking ahead to identify consequences of the findings for the potential of ICT in mediation work.

6.1 Intermediation

Effective information flow must be a two-way process, as described by Madon and Sahay (2002): On the one hand, ensuring that the voices of the poor are heard by the policymakers and, on the other hand, ensuring that information about government, services and benefits reaches the poor. When intermediation takes place it brings out new meanings in group development (Madon & Sahay 2002). In this thematic discussion we aim to sharpen the understanding of and demonstrate the importance of mediation in creating connections between information and development in community life. In figure 5 below we have summarised the findings regarding the current intermediation practice. In the following we expand on the issues described in the figure.
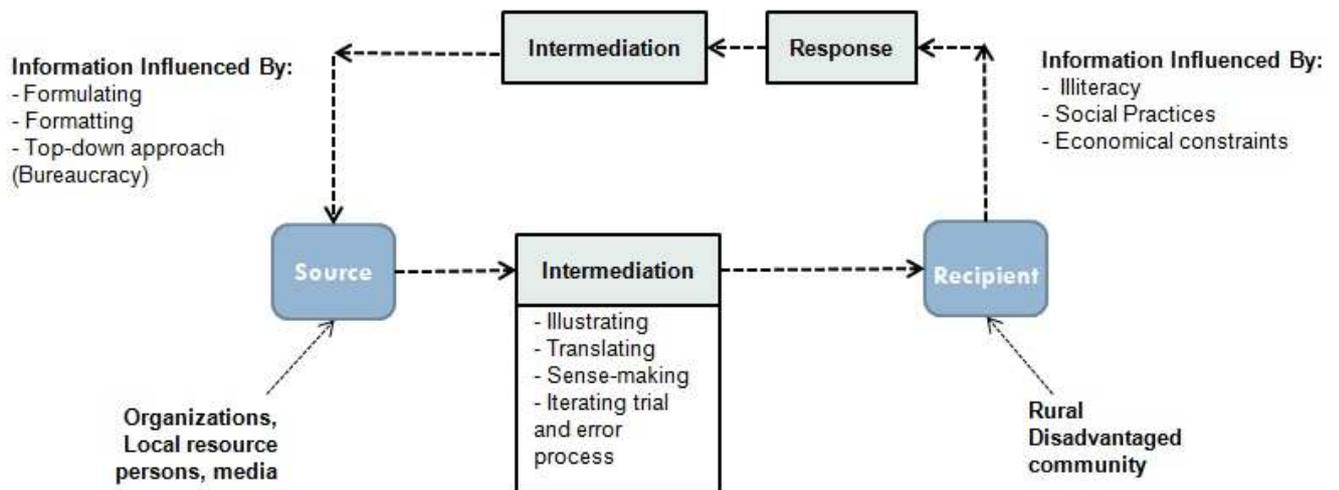

Figure 5. Communication diagram describing the intermediation process.

This communication diagram describes three major components in the mediation process: sources for information/knowledge (organisations, local resource persons and media); recipients (the rural disadvantaged community) and the intermediation activities (illustrating, translating, sense making and iteration of trial and error processes). The FFs (who function as mediators in our study) perform intermediation work both when information travels *from* source *to* recipient and vice versa.

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Formulation and formatting of information is mainly a result of the understanding of the source and, consequently, the recipients often have problems comprehending the information. Apart from the obvious problems for illiterates, there is also a need for literate people to translate ideas and concepts presented in e.g. material from health authorities or local government agencies. This is done by the FFs through use of appropriate words and tone of language. Furthermore, an experienced FF has acquired a certain level of knowledge by spending time in the rural community as well as with the domain experts.

It is clear that the rural people are also bound by long-lasting social practices, which need to be addressed and dealt with by a mediator, e.g. as expressed by this FF: "I try my best to explain them why this message is important, and how this information will work in the future. Concepts related to e.g. the vision of Digital Bangladesh (birth certificates for each child is one example) can be difficult to understand as long as they are not part of the everyday practice and experiences of the local community. The mediator plays a vital role in this process.

Another example of how FFs work as translators can be found in the case of government information on old age benefits which is sent from the national to the local government. Subsequently, the local government has the power to translate this information for people in the rural community. However, when the reformulated information is available the recipients still need to understand how to make use of the information. A PS member told the following story, which is also an illustration of the consequences of the top-down approach in formulating information:

"My father is 50 years old and he is sick and depends on my income. One day I heard about the old age benefit. I went to the local government office and filled up the form. I was also helping my neighbour do the same, and later I went again to give the form back. It took many days to do that process. Finally I heard that my father is not eligible because he is not old enough. So whenever we have the chance to talk with FF, we share our problem with her first."

When it comes to media use, the data show that the use of media is very scarce. TV and radio are mainly used for entertainment purposes by the target group, and since most of them do not have a TV, they use it for entertainment purposes whenever they get the time and opportunity to watch TV. They hardly ever use radio. Members of the PS groups use mobile phones to send short messages and to talk to each other about matters which need no interpretation or detailed information.

6.2 Social capital and knowledge creation

In this part of the analysis we cover the three dimensions of social capital described earlier (based on Huysman's work), namely the structural opportunity to share, the cognitive ability to share and the relationship-based motivation to share.

6.2.1 Structure

When considering the structural opportunity to share information and knowledge, we observe two significant opportunities, namely the organisational set-up of PS groups and the community engagement observed in the practice of the FFs. We find that FFs act as information and network brokers. When they contact organisations to collect information in detail and contact resource persons like village leaders or

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health workers, they continuously expand their networks. Also when helping PS leaders or members reach resources, the FFs function as network brokers and boundary spanners. An important aspect of this activity is to create new opportunities for sharing the needs of the community with resource persons or government officers.

6.2.2 Cognitive ability

The example with old age benefit presented above illustrates the fact that information about the availability of a government service or social benefit is not sufficient. The people concerned also need to know (or see, through the example of others) how to apply this information, what conditions should be met to be eligible for certain benefits etc. Among other things, this is a matter of finding a balance between making complex information easy to understand and supplying enough detail to make the information both accurate and useful. Furthermore, it is a question of having the cognitive skills to interpret the information and relate it to the realities of one's own life or that of others. For this, mediation is needed, and the FFs take on this task in their daily practices. FFs have developed their cognitive skills both from their formal training and from experience with interacting with the relevant actors and participants over time.

As part of their work practices, FFs are also involved in a network of knowledge domain experts, such as local government officials, local community health workers, women association officers, who are involved in providing skill training or income generation work. These interactions extend their cognitive abilities and over time it prepares the FFs to overcome some of the cognitive barriers presented by different information sources. From the perspective of the PS it becomes clear that a skilled level PS becomes more self-sufficient due to her cognitive skills and social experience in dealing with various information sources in a collaborative manner.

6.2.3 Relationship-based motivation

The study of the work of FFs shows that the conditions in the rural environment, poor infrastructure and uncertainty about appointments in public offices take its toll on the FFs. However, it is clear that many FFs find satisfaction in the work they do, because they can see the positive effect it has on the people they work with (e.g. the PS). This is also mentioned several times in the interview data. In the words of one FF:

"My knowledge level was very poor when I joined this work. I was thinking how will I manage to communicate with these marginalised groups as well as people in the organisations, but I can do it better now and I like to help those PS, when I see that with a little help from my side they are benefitted in their real life through collective action".

The relationship between the FFs and local government officials or other information sources is crucial to how well the FFs can do their job. Several FFs mention the fact that government officials are not always willing to share information with them, or they are reluctant to meet with them after a day of travelling on the dusty roads etc. Since there is rarely an alternative way of obtaining the information (which is sometimes the very reason why it is being withheld), FFs are forced to try to build good personal relationships with the local sources.

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6.3 The role of ICT in intermediation

Based on the analysis of the practices of FFs and the information practices in general, we suggest the following conceptual model (see figure 6) to illustrate the crucial process of transforming information into knowledge, which requires (and also adds to) social capital in the community groups. Furthermore, the process of knowledge building is – for the less skilled groups – dependent on the mediation work carried out by the FFs and others. This means that when designing for future use of ICT, the intermediation process needs to be integrated into the design. This is important both in relation to supporting the translation of words, ideas and concepts in the information and to identifying the relevance of the particular information to the life situation of the recipients.
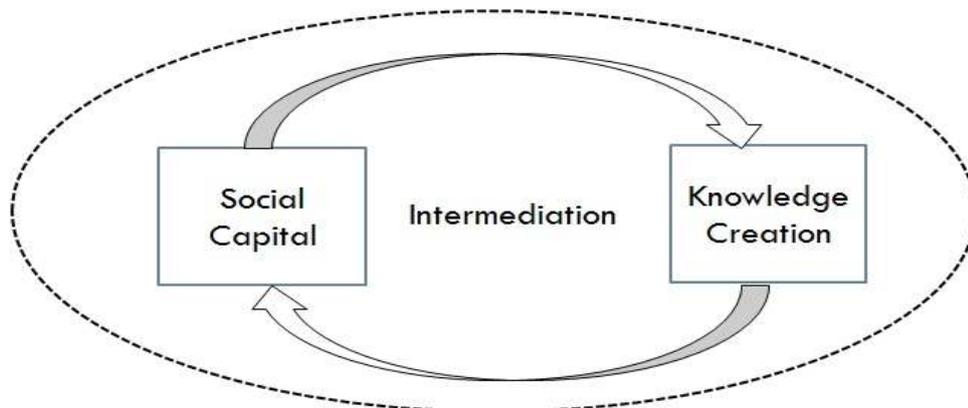

Figure 6. Conceptual model for the knowledge creation process.

Regarding the role of ICT, this analysis gives rise to the following conclusions and questions:

- On a short-term basis, the use of ICT for information seeking by people in rural areas does not seem feasible.
- There is potential in providing access to ICT-based information for FFs – also within a short time.
- The training of FFs should address the issue of learning to learn in order to change their role from expert to facilitator. However, this is not easily done in areas with very low literacy rates and severe poverty.
- When ICT is made available for information seeking in rural areas the role of the translator should still be in function in order to support less literate citizens in accessing information.
- In the case of telecentres, there is a need to consider how access to information can lead to knowledge creation and sharing.
- The higher the cognitive barrier, the more people rely on social networks rather than electronic ones.

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